

## PRO FOOTBALL

### INSTALLATION PROCEDURES AND GAME OPERATION INSTRUCTION.

All games have been carefully inspected before leaving the factory, however, minor troubles may result due to vibration during shipment. Plugs may come out of their sockets, tilt switches may be out of adjustment, etc. The following steps should be taken to insure the proper operation of this machine:

#### VISUAL INSPECTIONS TO BE DONE BEFORE PLUGGING IN LINE CORD.

1. Check for foreign material across the contacts.
2. Look for disconnected wires.
3. Check plugs to be sure they are securely seated in the sockets.
4. Dress cables to keep away from moving parts.
5. Inspect for cold solder connections.
6. Manually operate all step-up units. Action should not be sluggish.
7. Check the fuses. They should be firmly seated in the clips.
8. Adjust leg levelers so that playboard has desired pitch and is level to the horizontal axis.
9. Check the tilt switches: Vibration tilt on playboard, pendulum tilt and ball roll tilt on side panel.
10. Adjust ball roll tilt and pendulum tilt.
11. Check the bounce switches on the bottom panel and in the lightbox.
12. Check the anti-cheat switch on the front door.

#### PLUG IN THE LINE CORD

The coin chute lights and the scene lights in the lightbox should go on. If not, operate the on-off switch located at the bottom right front corner of the cabinet.

Raise the playboard and close the front door. Drop coins thru the entrances to games; alignment of coin feed troughs to rejectors. Check coin lockout wires; they should be out of the path of the coins when the game is on.

If the 1st & 2nd

1 play" position, insert chute adjustment plug is in the "1 coin 1 Play - 1 coin 2 coins per play relay ("Y") a coin in the first chute (nickel) will actuate the 2 relay ("S") thru the "Y" read and inserting the second coin will actuate the start (dime) will actuate the start relay switch. Inserting a coin in the second chute

If the 1st and 2nd chute adjustment is in the "1 coin 1 play - 1 coin 2 plays" position, inserting a coin in the 1st chute (nickel) will actuate the start relay ("S"). Inserting a coin in the 2nd chute (dime) will actuate the 2 play relay ("X"). "X" relay steps the 2nd chute (dime) will actuate the 2 play to push the red button on the front play unit two steps. It is then necessary

Insert a coin in the third door to start the game.

Insert a coin in the third door to start the game. "W" relay will step the "W" unit as indicated by the 3rd chute adjustment plug. (2, 3, 4,

## OPERATING INSTRUCTIONS

Inserting a coin actuates "S" relay (Start Relay).

2. This relay will lockin thru its own switch and a motor 2B switch.
3. The following sequence takes place thru the closed switches on "S" relay.

- a. The motor starts running.
- b. The total play meter and AB relay coil are actuated by switches on motor 3C and motor 1A.
- c. The reset "Ball Count" unit coil is energized returning the unit to zero.
- d. The advance unit ("T" relay) is pulsed by motor 1A to its zero position.

When "AB" relay coil is actuated it is locked in by the armature of "AB" reset coil. A switch on "AB" relay closes and actuates "Z" relay. Thru closed switches on "Z" the point score and high score units reset to zero thru switches on motor 1A and motor 4A. When all units are reset to zero and motor 4D makes, "AB" reset relay is actuated. This releases the armature on "AB" relay and opens the switch that actuated "Z" relay. The reset cycle is now complete.

4. Place the ball in the outhole. When the ball closes the ball return switch "Q" relay is actuated, a switch closes and pulls in "P" relay thru normally closed switches on "O" relay and motor 1C. When "P" relay pulls in the motor starts running. The normally open switches on "P" relay close, completing the circuit to "O" relay and the add "ball count" unit coil thru motor 4C switch. "O" relay stays locked in thru its own switch and normally closed switches on "L", "M", and "N" relays. The game is now set up for play.

5. Press the right flipper button and the motor starts running. When motor 2C closes the circuit to the ball return coil, it actuates, and it opens the ball onto the playfield. When the ball hits a scoring contact "S" relay drops out and both flipper buttons can now be activated. If the ball player not hit any of the scoring contacts it will return to the outhole and 1. The player will press the flipper button again without a loss of the previous score.

THE SWITCH IN THE LIGHT-BOX, "T" RELAY WILL ENERGIZE. A NO. TO "R" RELAY. "T" WILL OPEN AND BREAK THE CIRCUIT.

## PLAYFIELD OPERATION

The top and side rollovers, the spinning target, the center rollover button, and the vari-targets score high score points as indicated and advance the football light up the field. Ten advances scores a touchdown for 6 points on point score and 6,000 points on high score. The 6th position on the vari-targets and the bottom rollovers score a touchdown regardless of which football is lit. The four yellow football targets score 1 point on point score.

The pop bumpers score 100 points or 1,000 points when lit.

The kicking rubbers are actuated by the ball hitting a stretched rubber and closing either of two switches. These switches cause the kicking rubber coil to energize and pull in a plunger. The plunger is connected to an arm that kicks the rubber ring with enough force to propel the ball away from it. The kicking rubbers score 10 points on high score.

The flippers are actuated by the player pressing buttons on the sides of the cabinet. The flipper coils have two windings; one of heavy wire that passes high current allowing a strong initial stroke, the second winding is of lighter wire and is in series with the first winding. The lighter winding is shorted out until a normally closed switch is opened by the flipper linkage. This allows the flipper to be held energized and not overheat because less current passes through the coil.

NOTE: THE PLAYBOARD PITCH SHOULD BE 3-1/2 DEGREES TO MAINTAIN PROPER BALL ACTION AND PLAYER APPEAL. THIS IS BUILT INTO THE GAME BY RUNNING THE LEG ADJUSTERS ALL THE WAY IN AND THEN ADJUSTING THEM TO LEVEL THE MACHINE ON ITS HORIZONTAL AXIS.

## ADJUSTMENTS ON PRO FOOTBALL

### LIGHTBOX

#### HIGH SCORE AND POINT SCORE ADJUSTMENT

These adjustments allow replays for variations in high scores and point scores. See related card for instructions. Refer to recommended score card before making the changes. When changing scores, change the cards on the playboard card holder to agree.

#### 3 - 5 BALL ADJUSTMENT

This adjustment changes the number of balls played per game and changes the pop bumpers to score 1,000 points more frequently. The "Ball Count" unit steps once for each ball played until it reaches the third or fifth step, depending on how the 3-5 ball adjustment is set. The third or fifth ball leaving the playfield pulls in "P" relay, the motor runs and motor 1A pulses the add "Ball Count" unit to the 6th step. The 6th position "Ball Count" unit switch opens the circuit to the playboard contacts.

### BOTTOM PANEL

#### 3RD CHUTE ADJUSTMENT

Inserting a coin in the third chute sets up the game and steps the replay credits as determined by the 3rd chute adjustment (2, 3, 4, or 5).

#### 1ST OR 2ND CHUTE ADJUSTMENT

This adjustment determines how many coins are required to set up the game or add the replay credit unit. If the adjustment is in (2 coins-1 play, 1 coin-1 play) position, game is set to take 2 coins in the first chute or 1 coin in the second chute to start the game. If the adjustment is in (1 coin-1 Play, 1 coin-2 plays) position, the game is set to take 1 coin in the first chute to start the game or 1 coin in the second chute to start the game and step the "Replay" unit two steps.

### BALL ROLL TILT PANEL

There are two sets of holes for mounting the tilt bob strike plate. By moving the strike plate closer to tilt bob support bracket the game will be less sensitive to tilting.

### FRONT DOOR

#### COIN CHUTE SWITCH

The coin chute switches are carefully adjusted to the recommended pressures and gaps with a feeler gauge and a gram gauge. Under normal operation these switches will function as designed, however, if a sharp blow on the front door or dropping of the cabinet sets up the game, carefully inspect and adjust the coin chute switches as indicated on page 8 of this booklet.

SEE PLAYBOARD INFORMATION PAGE FOR MECHANICAL ADJUSTMENTS.

# RELAYS

<u>NO.</u>	<u>COIL NO.</u>	<u>TYPE</u>	<u>CONTACTS</u>	<u>USE</u>
A	A-9740	AG	1A, 1C	ALTERNATING RELAY
B	A-9735	AG	4A	RIGHT & LEFT POP BUMPER RELAY
C	A-9735	AG	4A	50 YARDS & 100 SCORE RELAY
D	A-9735	AG	4A	30 YARDS & 100 SCORE RELAY
E	A-9735	AG	3A	10 YARDS & 100 SCORE RELAY
F	A-9735	AG	5A	POINT SCORE RELAY
G	A-9735	AG	6A, 2B	6 POINT SCORE RELAY
H	A-9735	AG	2A, 1B	"BB" RELAY DELAY RELAY
I	A-489	AS	2A, 1 DISC	ADVANCE UNIT RELAY
J	A-489	AS	1A, 2 DISC	ADVANCE UNIT RELAY
K	A-9735	AG	2A	00-90 UNIT RELAY
L	A-9735	AG	5A, 1B	10, 000 SCORE RELAY
M	A-9735	AG	4A, 1B	1, 000 SCORE RELAY
N	A-9735	AG	4A, 1B	100 SCORE RELAY
O	A-9735	AG	2A, 1B	10 SCORE RELAY
P	A-9735	AG	2A, 3B, 1C	BALL RETURN RELAY
Q	A-9740	AG	5A	ADD BALL COUNT UNIT RELAY
R	A-9738	AG	2A, 1B	BALL RETURN CONTROL RELAY
S	A-9740	AG	4A, 1B, 1C	HOLD RELAY
T	A-9742	AG	6A, 1B	START RELAY
U	A-9740	AG	1B	TILT RELAY
V	A-9740	AG	3A, 1B	VARI-TARGET RESET RELAY
W	A-9740	AG	4A	VARI-TARGET SCORE CONTROL RELAY
X	A-9740	AG	3A, 2B	3RD CHUTE RELAY
Y	A-6698	AG	2A, 1B	2 PLAY RELAY
Z	A-9740	AS	1A	2 COINS PER PLAY RELAY
AB	A-3891	AG	6A	RESET RELAY
ABR	A-3891	INTER-LOCK	3A, 1B	RESET COMPLETED RELAY
BB	A-9735	AG	5A, 1B	"G" RELAY DELAY RELAY

# OTHER COILS USED

<u>COIL NO.</u>	<u>DESCRIPTION</u>
A-5194	KICKING RUBBER COILS
A-4893	POP BUMPER COILS
A-12092	CHIME COILS
A-5143	POINTS BELL COIL
A-1496	ADD REPLAY UNIT COIL
A-5194	SUBTRACT REPLAY UNIT COIL
A-1496	ADD BALL COUNT UNIT COIL
A-5194	RESET BALL COUNT UNIT COIL
A-5141	FLIPPER COILS
A-9154	SCORING UNIT COILS
A-5143	KNOCKER COIL
A-9740	VARI-TARGET RESET COILS
A-7677	COIN LOCKOUT COIL
A-4893	BALL SHOOTER COIL
A-7760	MOTOR 60 Hz.
A-11560	MOTOR 60 Hz.
B-3235	TRANSFORMER 115V.
B-8660	TRANSFORMER 230V.

# DISC & WIPERS USED

	<u>DISC</u>	<u>WIPER</u>
BALL COUNT UNIT	B14254	B-9998
ADVANCE UNIT		
(I RELAY)	A-9016	B-9015
00-90 UNIT	A-9016	A-9015
(J RELAY)	A-9017	A-9015
VARI-TARGET UNIT	A-13894	-
SCORE UNITS	C-12493	B-9166

# PLAYBOARD INFORMATION

## RUBBER RINGS

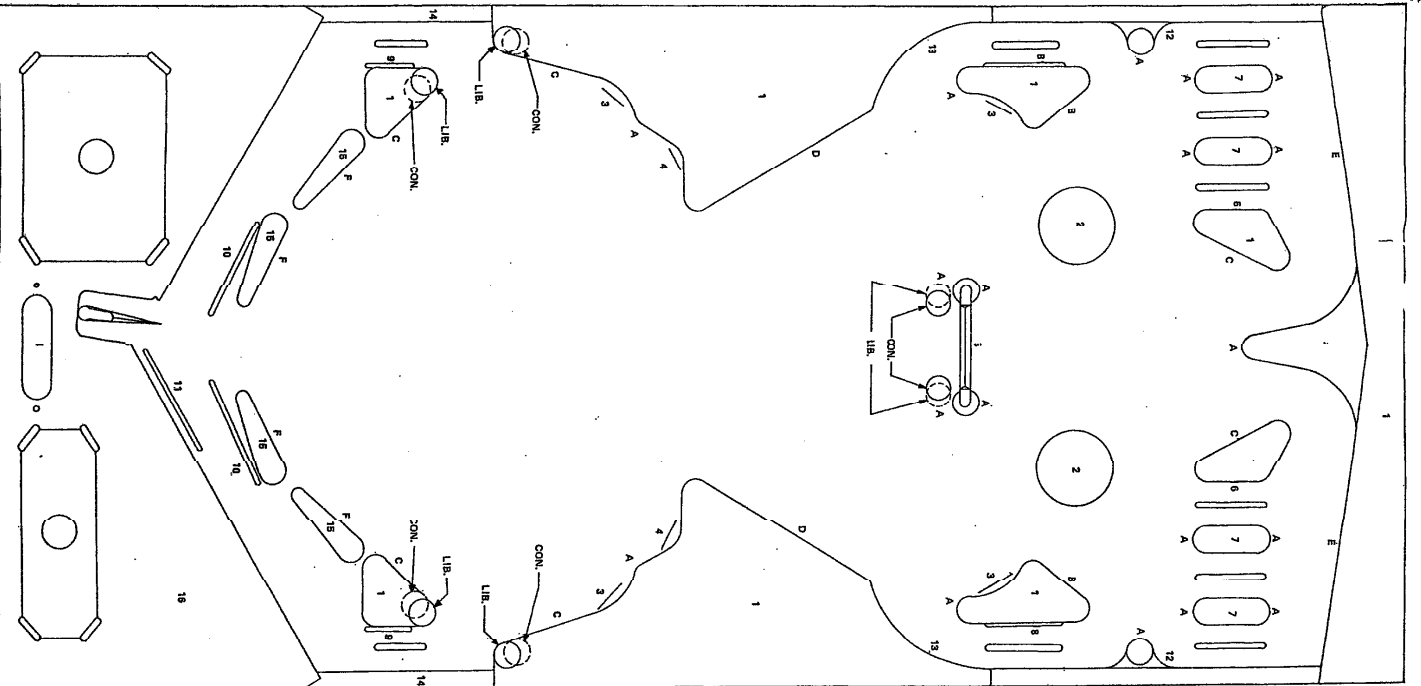
A - A-10217	(19)
B - A-10219	(2)
C - A-10220	(6)
D - A-10223	(2)
E - A-10224	(2)
F - A-13151	(4)

## PARTS LIST

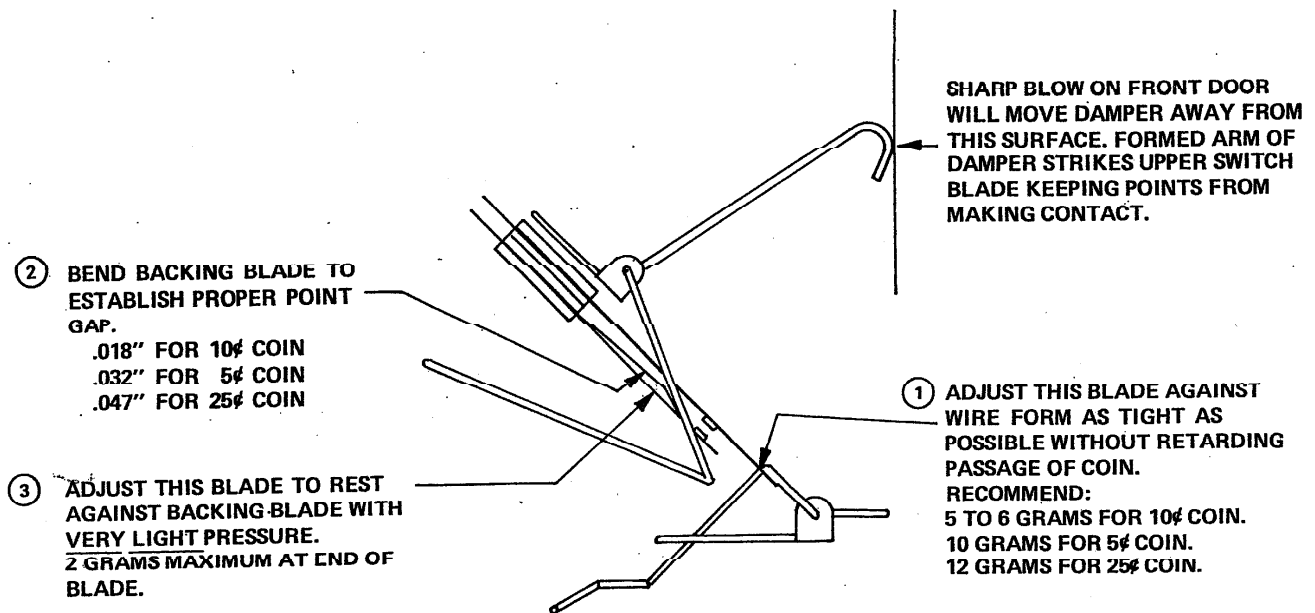
1. C-14266 Plastic Shield Set.
2. Blue Pop Bumper, White Cap  
(Indicates 1000 Points)
3. A-14273 Football Target (B9591  
Target & Switch Assm.)
4. B-11535 Vair-Target Arm & Cam.
5. A-14286 Football Spinning  
Target.
6. A-9393 White Plastic Guide Rail.
7. A-9394 White Plastic Guide Rail.
8. A-3722 Ball Guide Rail - Wire  
Form.
9. A-6931 Ball Guide Rail - Wire  
Form.
10. A-13696 Ball Guide Rail -  
Wire Form.
11. A-13798 Ball Snubber - Wire  
Form.
12. A-12127 Metal Flat Rail.
13. A-14267 Metal Flat Rail.
14. B-14880 Wood Side Rail.
15. C-13150 Flipper.
16. D-14910 Card Holder.

C-11561 Plastic Post  
7" High (43) White  
(4) Purple

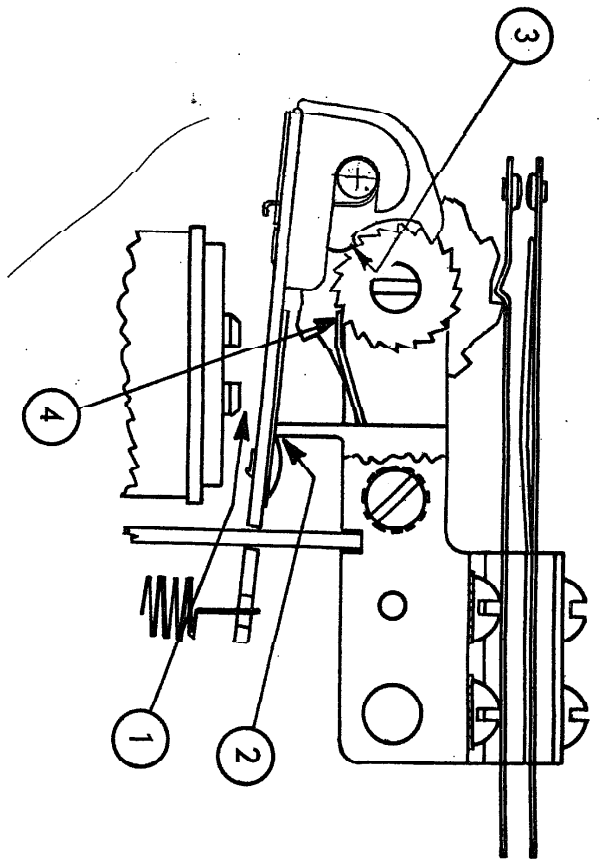
LIB. = LIBERAL.  
CON = CONSERVATIVE



## COIN SWITCH ADJUSTMENT







#### "AS" RELAY ADJUSTMENT

If an adjustment is needed to the "AS" relay, follow steps as outlined below:

The gap between the armature and the pole piece of the coil as measured at (1) should be approximately .050 inches. The drive pawl should travel 1-1/4 to 1-1/2 teeth on ratchet spindle. Both of these conditions depend on the outboard bearings being perpendicular to the relay frame.

Tighten override stop (2) so that it just touches, but does not exert any pressure, on the armature. Check to see that the drive pawl is in firm contact with the ratchet spindle at (3).

Adjust the index spring to rest in the 1st tooth back of center (4) and to exert a minimum of pressure to the ratchet. This pressure can be adjusted by bending the index spring mounting arm. Check thru one revolution to be sure the index spring clears each tooth with a minimum of backlash.

Adjust bottom switch blade to rest lightly in depression of cam; adjust top blade so that the gap between points is 1/32 inches and resting very lightly against backing blade.

If relay is equipped with a disc, the wiper will stop in the center of a segment when the above adjustments are correct.

